

Multiple Stressors: Interactions

Summary Points - Canuel

- Stressor interactions may be additive, synergistic and antagonistic.
- As number of stressors increases, interactions become more complex and more synergistic.
- Stressor effects may differ for producer vs. consumer organisms
- Effects can extend beyond spatial and temporal scales of individual stressor, increasing potential for interactions with additional stressors.



Multiple Stressors: Interactions Management Considerations

- **Interaction type varies by response level (e.g., individual species, population, community, etc.)**
 - **structure management strategies around broad system properties such as diversity and maintenance of ecosystem services rather than individual species** (*Palumbi, 2009, Front Ecol Env*)
 - **diversity enhances a variety of ecological processes that enhance recovery, resistance, protection, recycling, etc**
- **Guiding principles for management** (*Foley et al. in press, Marine Policy*):
 - **Maintain native species diversity**
 - **Maintain habitat diversity and heterogeneity**
 - **Maintain populations of key species**
 - **Maintain connectivity**